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मानक

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Mazdoor Kisan Shakti Sangathan

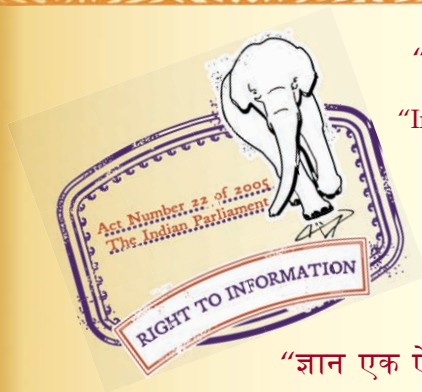
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“पुराने को छोड़ नये के तरफ”

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“Step Out From the Old to the New”

IS 4506 (1989): Hand Tools - Forks, General Purpose [PGD 6: Earth, Metal And Wood Working Hand Tools]



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Satyanarayan Gangaram Pitroda

“Invent a New India Using Knowledge”



“ज्ञान एक ऐसा खजाना है जो कभी चुराया नहीं जा सकता है”

Bhartrhari—Nitiśatakam

“Knowledge is such a treasure which cannot be stolen”



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*Indian Standard*

**HAND TOOLS — FORKS, GENERAL  
PURPOSE — SPECIFICATION**

*( First Revision )*

**भारतीय मानक**

हाथ के औजार — कांटे ( फोर्क ), सामान्य कार्यों के लिए — विशिष्ट

( पहला पुनरीक्षण )

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**BUREAU OF INDIAN STANDARDS**  
MANAK BHAVAN, 9 BAHADUR SHAH ZAFAR MARG  
NEW DELHI 110 002

November 1989

Price Group 3

## FOREWORD

This Indian Standard ( First Revision ) was adopted by the Bureau of Indian Standards on 3 February 1989, after the draft finalized by the Hand Tools Sectional Committee, had been approved by the Mechanical Engineering Division Council.

It lays down the requirements of forks used in road building, paving and coke loading, etc. Digging forks specified in this standard are not for use in plantations and estates and such forks have already been covered in IS 621 : 1978 'Specification for forks for plantations and estates (*first revision*)'.

This specification originally published in 1968, had covered the requirements of ballast forks only. The present revision has been taken up in order to include trenching forks and also coke forks. The title of the specification has, therefore, been changed accordingly. Further, the welding of prongs to sockets/straps and any handle other than wood has also been allowed, provided it meets the performance requirements.

In the preparation of this standard considerable assistance has been derived from BS : 3388-1973 'Specification for forks, shovels and spades' issued by the British Standards Institution.

# Indian Standard

## HAND TOOLS — FORKS, GENERAL PURPOSE — SPECIFICATION

### ( First Revision )

#### 1 SCOPE

1.1 This standard covers the dimensions and other requirements of forks for general purposes.

#### 2 REFERENCES

2.1 The following Indian Standards are necessary adjuncts to this standard:

IS No.	Title
IS 620 : 1985	Wooden tool handles, general requirements ( <i>fourth revision</i> )
IS 621 : 1978	Forks for plantations and estates ( <i>first revision</i> )
IS 1570 (Part 2) : 1979	Schedules for wrought steels: Part 2 Carbon Steels (unalloyed steels) ( <i>first revision</i> )
IS 2500 (Part 1) : 1973	Sampling inspection tables: Part 1 Inspection by attributes and by count of defects ( <i>first revision</i> )

#### 3 NOMENCLATURE

Shall be as shown in Fig. 1.

#### 4 TYPES

4.1 General purpose forks shall be of the following types:

- a) Digging Forks,
- b) Trenching Forks,
- c) Ballast Forks, and
- d) Coke Forks.

#### 5 DIMENSIONS

5.1 The dimensions of digging forks shall be as given in Fig. 2.

5.2 The dimensions of trenching forks shall be as given in Fig. 3.

5.3 The dimensions of ballast forks shall be as given in Fig. 4.

5.4 The dimensions of coke forks shall be as given in Fig. 5.

#### 6 MATERIAL

Forks shall be manufactured from suitable steels to meet the requirements laid down in 8 and 12.

##### *Example*

Steel designation 40C8 or 55C8 conforming to IS 1570 (Part 2) : 1979 with a maximum sulphur and phosphorus content of 0.06 percent each, shall be used.

#### 7 HANDLES

7.1 The handles, if made of wood shall conform to class 4 of IS 620 : 1975 or as agreed to between the manufacturer and the purchaser.

7.2 Handles of other materials if agreed upon between the manufacturer and purchaser may also be supplied provided the finished tool complies with the requirements laid down in 12.

#### 8 HARDNESS

The prongs of the forks shall be suitably hardened and tempered, up to the length 50 mm less from the shoulder. The hardness shall be 380 HV minimum.

#### 9 MANUFACTURE

9.1 The prongs of forks shall be either forged integrally or welded to the strap. The straps or sockets may be either forged integrally or welded with the prongs.

9.2 The sockets and straps shall be smooth and shall be positively and permanently secured to the handles.

9.3 The sockets and straps shall be close fitted and finished flush with the handle. Rivets shall also be finished flush.

9.4 Where handles of other material suitably joined to the socket are used in place of wooden handles, the socket may be shorter than specified provided the finished tool complies with the requirements laid down in 12.

#### 10 FINISH

The sockets or straps shall be polished bright or painted. The remaining areas of metal may be bright, self coloured or painted. Any exposed unpainted metal shall be given a suitable anti-corrosive treatment.

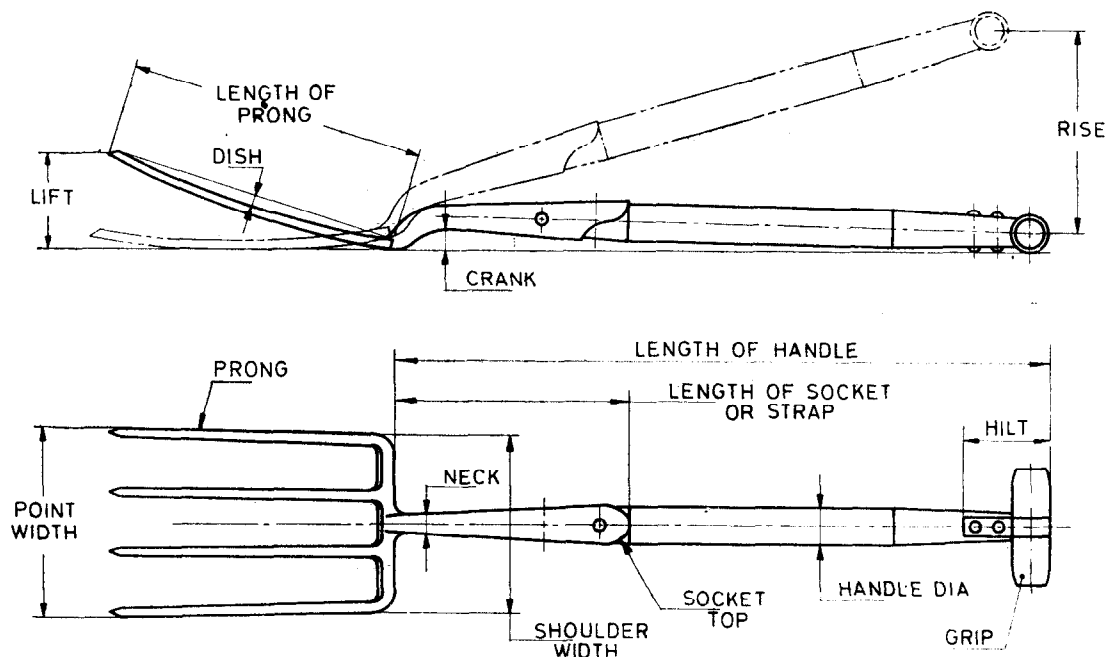
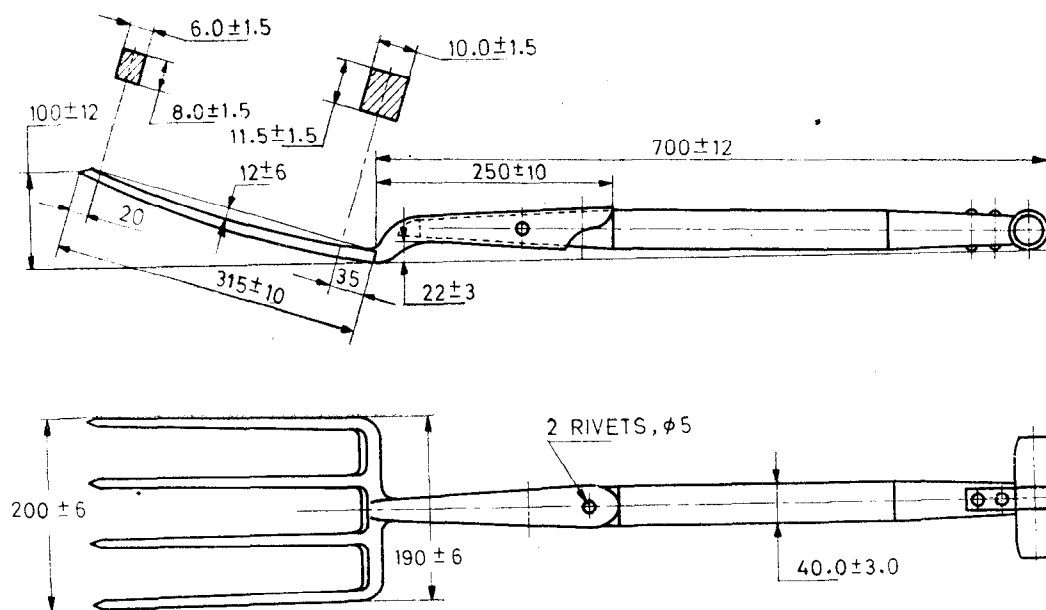
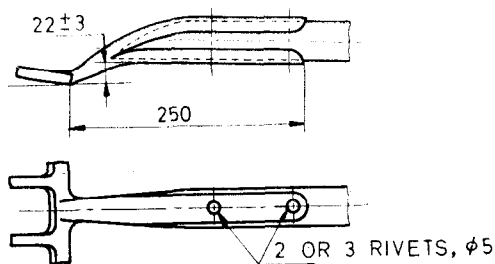


FIG. 1 NOMENCLATURE FOR FORKS



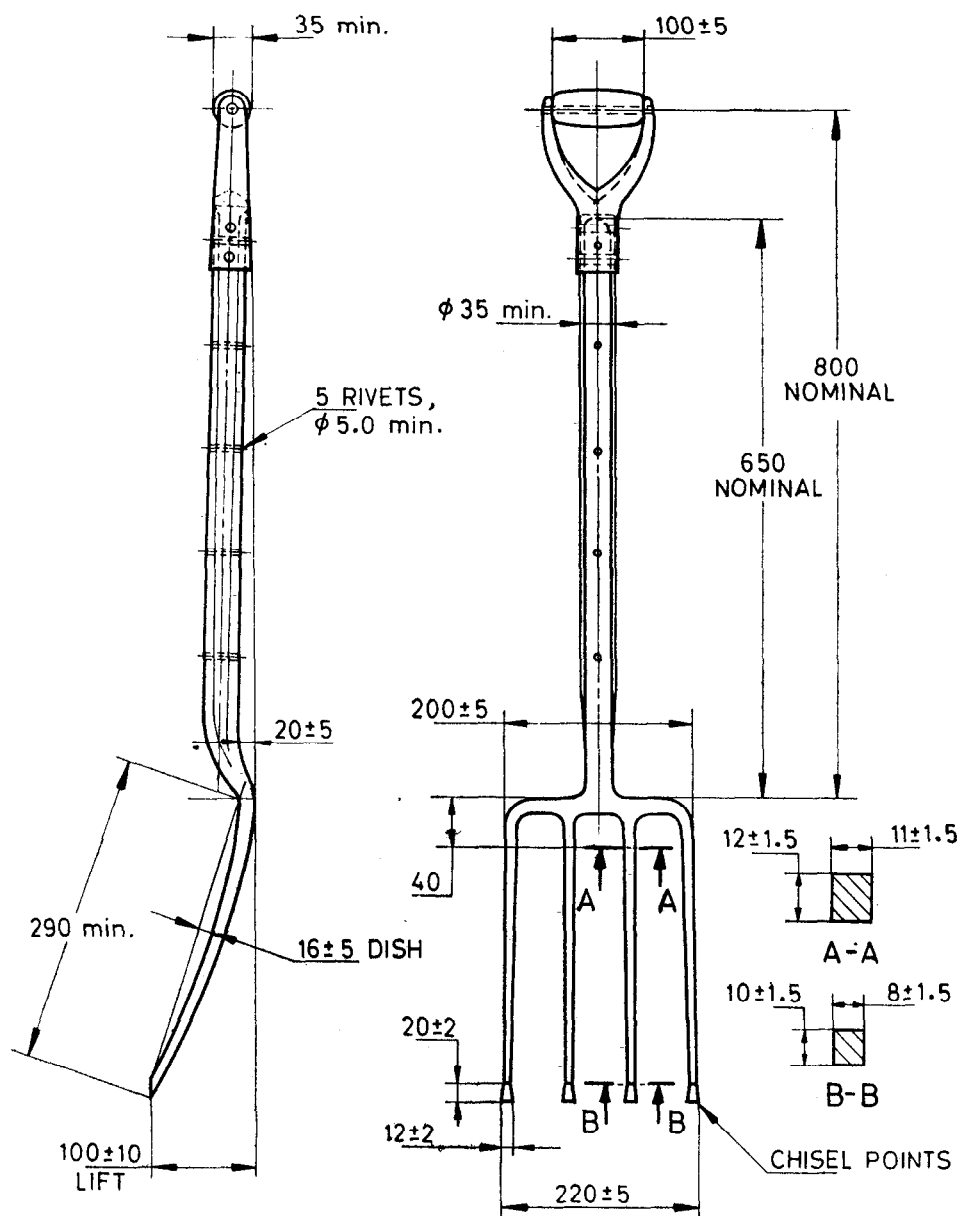
SOCKETED TYPE



STRAPPED TYPE

All dimensions in millimetres.

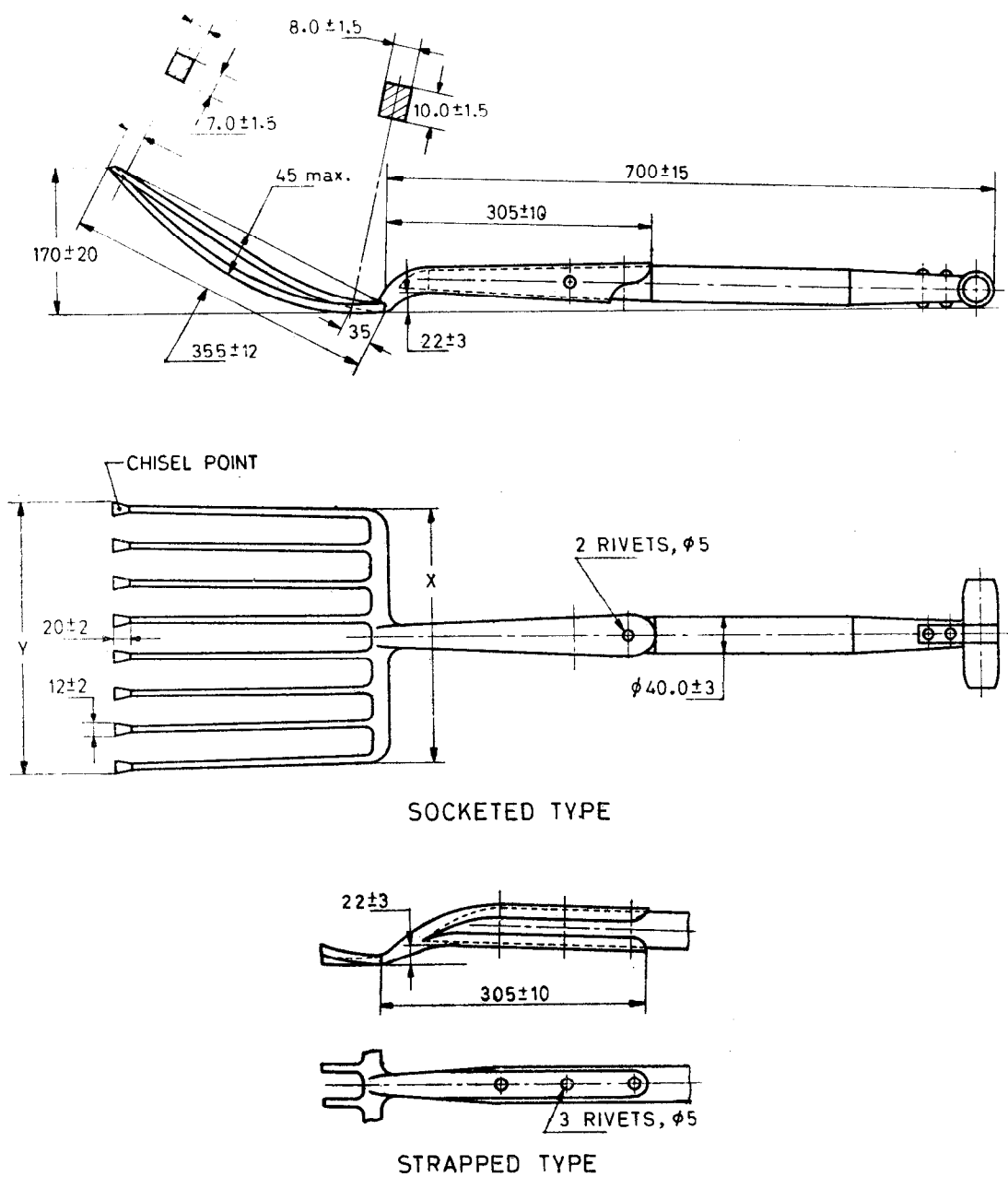
FIG. 2 DIMENSIONS FOR DIGGING FORKS



All dimensions in millimetres.

FIG. 3 DIMENSIONS FOR TRENCHING FORK





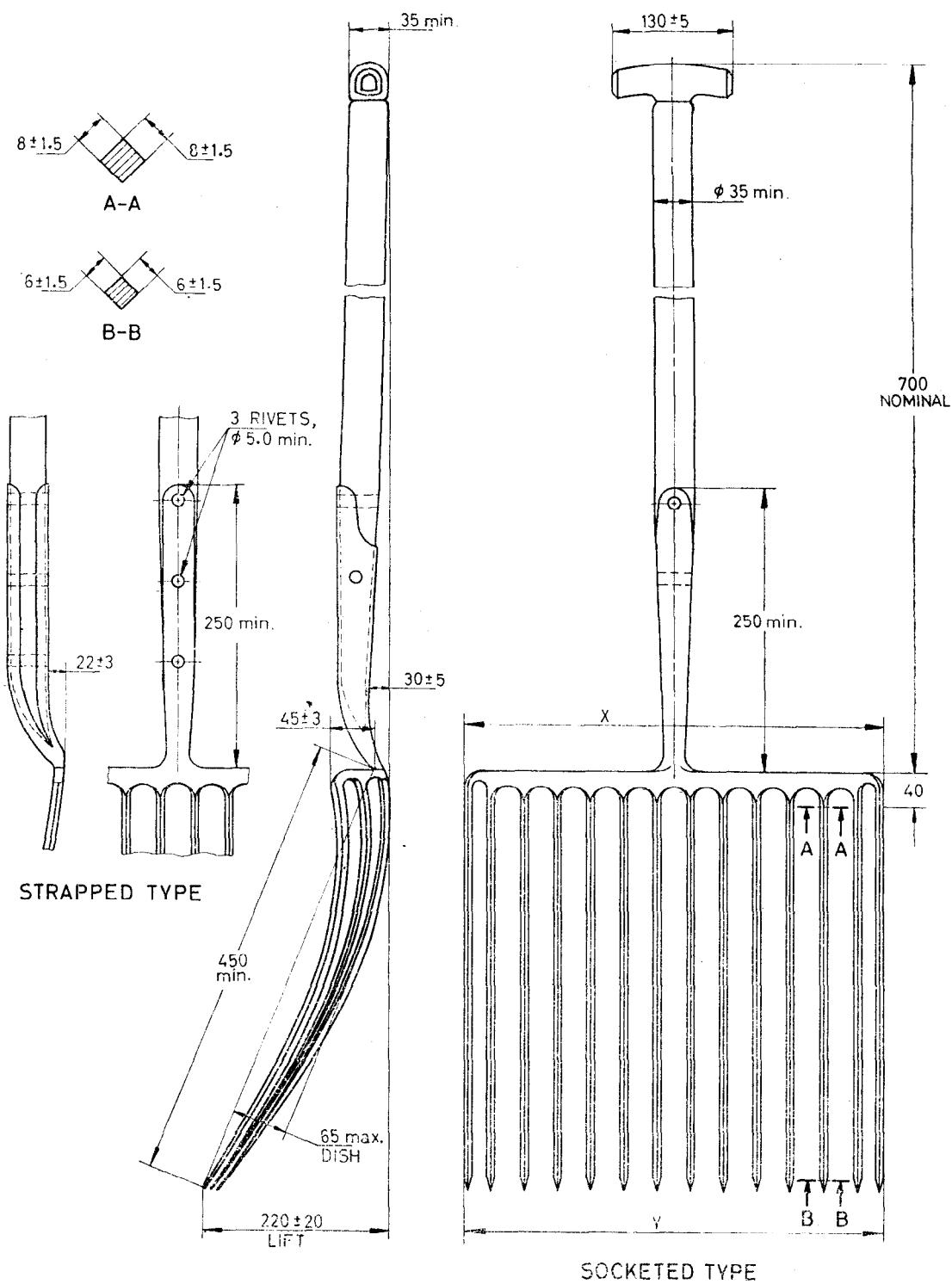
No. of Prongs	Dimension at Shoulder $X \pm 10$
8	290
10	380

NOTES

- 1 The point width  $Y$  shall not be less than the shoulder width  $X$ .  
2 If not specifically required by the purchaser the prongs may be of rectangular or diamond cross-section.

All dimensions in millimetres.

FIG. 4 DIMENSIONS FOR BALLAST FORK



No. of Prongs	Dimension at Shoulder $X \pm 10$
8	290
10	380
12	425
14	480

## NOTES

- 1 The point width  $Y$  shall not be less than the shoulder width  $X$ .
- 2 If not specifically required by the purchaser, the prong section may be rectangular or of diamond cross-section.

All dimensions in millimetres.

FIG. 5 DIMENSIONS FOR COKE FORK

## 11 SAMPLING

**11.1** Unless otherwise agreed to between the purchaser and the supplier, the procedures given in IS 2500 (Part 1) : 1973 shall be followed for sampling inspection. The sampling plan, inspection level and acceptable quality level shall be as given in 11.2, 11.3 and 11.4 respectively.

**11.2** For dimensions and workmanship, single sampling plan with inspection level IV and AQL of 2.5 percent as given in Tables 1 and 2 of IS 2500 (Part 1) : 1973 shall be followed.

**11.3** For bend and prong test, the single sampling plan with inspection level I and AQL 1.5 percent as given in Tables 1 and 2 of IS 2500 (Part 1) : 1973 shall be followed.

**11.4** For hardness test one sample shall be tested from each lot of 100 pieces or parts thereof. No sample should fail.

## 12 TESTS

### 12.1 Bend Test

The forks shall be clamped and a load of 40 kgf shall be gradually applied by suspension from the grip. The load shall be maintained in the position for one minute and then removed. A load of 55 kgf in case of digging forks and 65 kgf in case of other types of forks shall then be applied gradually and

maintained for two minutes. On removal of this load the forks shall show no sign of damage or loosening of any component part, nor shall there be any evidence of permanent set in excess of 25 mm when measured at the extreme tip of the hilt, at the centre line of the handle (*see* Fig. 6).

### 12.2 Prong Test

The prongs of forks shall be tested by bringing tips of any two adjacent prongs together in case of digging forks and trenching forks, any four adjacent prongs in case of ballast forks and any five adjacent prongs in case of coke forks. The permanent set is noted. At the end of this test, the prongs shall show no sign of permanent set or damage.

## 13 PACKING

**13.1** The forks shall be securely packed in suitable packing cases or crates of a size convenient for handling in transit, or bundled and secured suitably with wire or as may be specified by the purchaser. Each type of the fork shall be kept separate when packed and no package shall contain more than one variety of forks.

## 14 MARKING

The forks shall be clearly marked with the type, manufacturer's name or trade-mark/initials and year of manufacture.

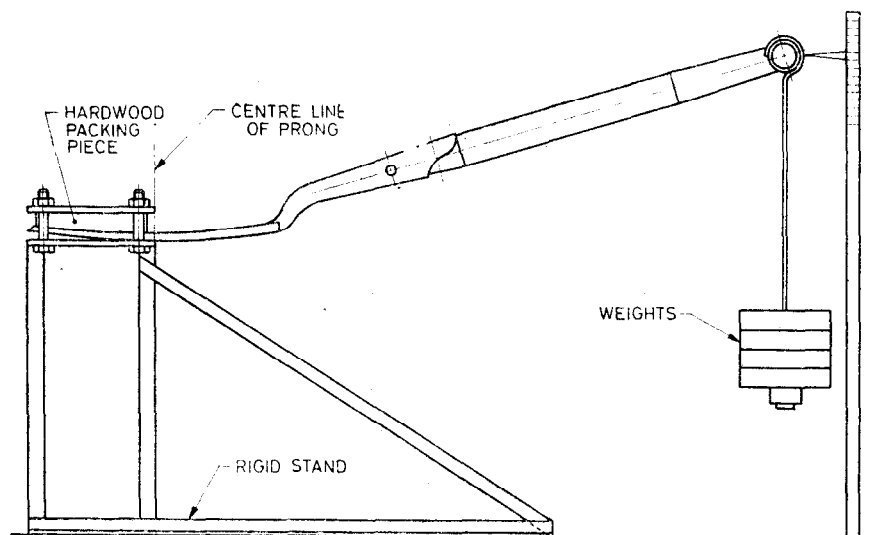


FIG. 6 BEND TEST OF FORKS

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